MODULAR INTEGRATED TRANSPLANT INFORMATION SYSTEM (MITIS)

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In the continuing attempt to answer the question: "What can we do to improve the care and outcome of our organ transplant patients?" MITIS was developed. The Modular Integrated Transplant Information System (MITIS) is a client / server based information system which provides the Oklahoma Transplantation Institute staff with an online systemic view of transplant related patient data for essential clinical and research support.

Technical:

The Modular Integrated Transplant Information System operates on a Local Area Network under the Novell Netware 3.12 operating system. It functions as a part of the hospital wide FDDI backbone. This backbone extends throughout the hospital allowing MITIS to interact with other hospital systems.

Fundamentals:

The foundation of MITIS is a normalized collection of Structured Query Language (SQL) tables. These tables contain expansive transplantation information created with the concept of keeping the informaiton as consistent as possible across all organs; parsing the information only when deemed specific to each organ. Our goal is to view patient data on a systemic longitudinal view rather than as 'snapshots'.

Modules:

From the fundamental tables of the relational database system extends specialized fully interactive modules to further enhance the system. These modules interact at various levels providing the enduser a user friendly interface. These modules are clinical, research, statistical, graphics, finance, and teaching.

The most important module of MITIS is the clinical module. This module's main function is to provide up-to-date information on patients for the transplant medical staff. The second most significant module is the research module. This module can be used to create sub-populations for analyses. Prediction of drug mechanism and treatment viability can be evaluated. Neural networks can be implemented to create decision based models.

The remaining modules play a critical role in support of the clinical and research module. The statistical module provides basic statistical functions such as minimums, maximums, sums, averages, standard deviation and standard error. Further statistics include life tables, Kaplan-Meyer product limits, and T-tests for evaluation of significance. The graphics module provides graphical representation of a set or sets of data queried by the user. It can provide survival curves and longitudinal representation of various factors. Additional features will provide on-line access to transplant based images (X-rays, CT scans, etc.). The finance module will permit administrative personnel to summarize and report on costs, benefits and discrepancies.

The teaching module is the last but possibly the most important for development. It will provide transplant surgeons and residents the opportunity to evaluate case based scenarios and to implement reasoning for improved clinical practice in organ transplantation for tomorrow. The modules are developed to work concurrently as well as individually. The graphics module uses data from the statistical module to derive survival curves. The teaching module may use findings from the research module to enhance the case based scenarios. The graphics module will graphically represent longitudinal laboratory values for the transplant coordinator via the clinical module.

Conclusion:

As of March 31 1994, there were 34,493 patients in the United States waiting for transplants (number of patients registrations on the national waiting list)[1]. The number of transplant candidates far outweighs the number of organ donations. We must therefore promote organ donation and concurrently value each opportunity given for organ transplantation. Baptist Medical Center of Oklahoma realizes and believes in these beliefs, and will further develop the Modular Integrated Transplant Information System (MITIS). This will in turn provide us with the tools to improve transplant patient care and quality of life.

References

[1] UNOS Update, Vol 10, Issue 4, April 1994

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